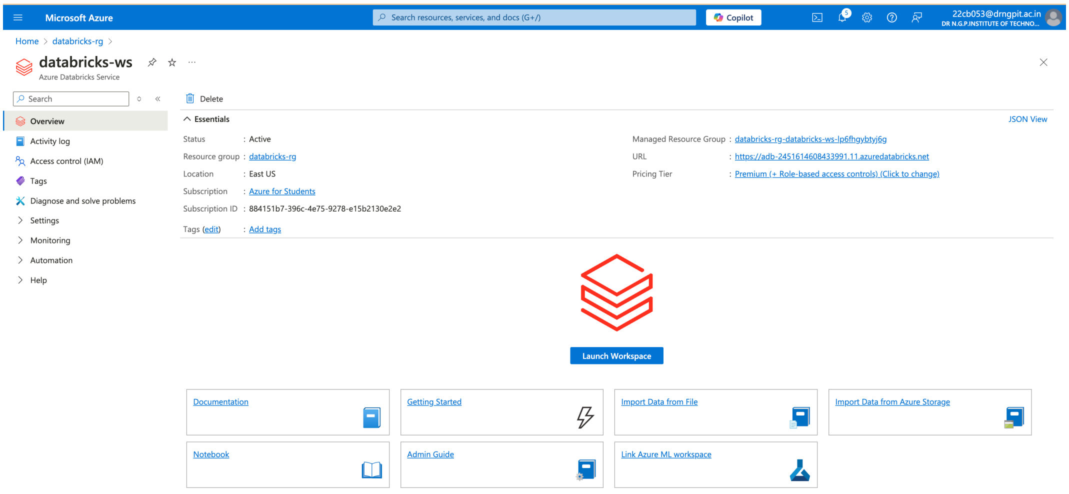
Step1 : Setting database containers and Azure data bricks



databricks-ws

Azure Databricks Service

Essentials

Status : Active

Resource group : databricks-rg

Location : East US

Subscription : Azure for Students

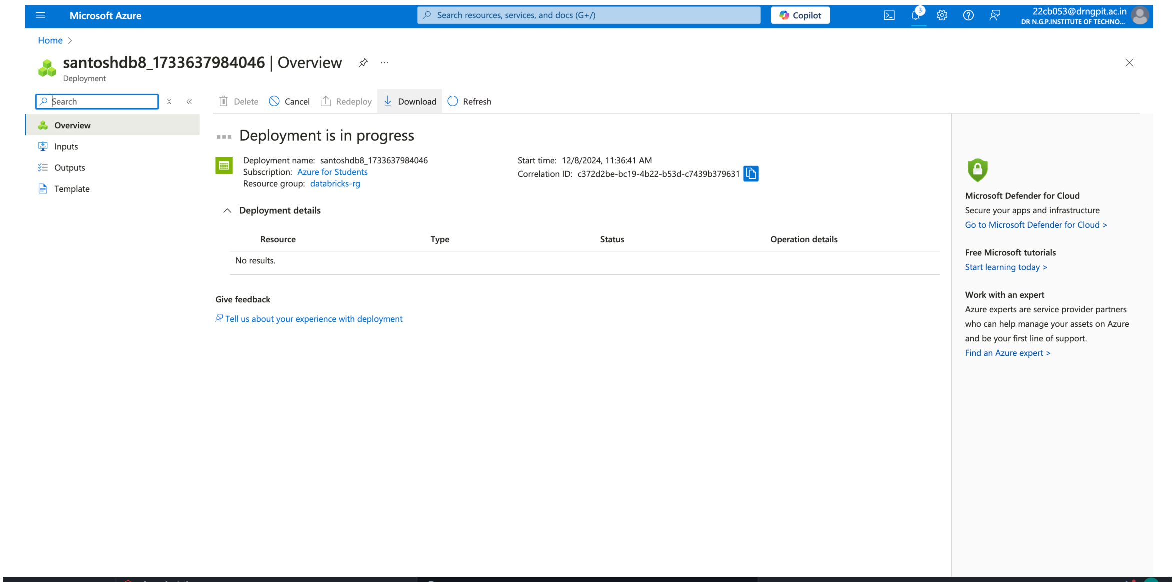
Subscription ID : 884151b7-396c-4e75-9278-e15b2130e2e2

Tags (edit) : Add tags

Managed Resource Group : databricks-rg-databricks-ws-lp6fhgybtyj6g

URL : https://adb-2451614608433991.11.azuredatabricks.net

Pricing Tier : Premium (+ Role-based access controls) (Click to change)



santoshdb8_1733637984046 | Overview

Deployment

Deployment is in progress

Deployment name: santoshdb8_1733637984046
Subscription: Azure for Students
Resource group: databricks-rg

Start time: 12/8/2024, 11:36:41 AM
Correlation ID: c372d2be-bc19-4b22-b53d-c7439b379631

Deployment details

Resource	Type	Status	Operation details
No results.			

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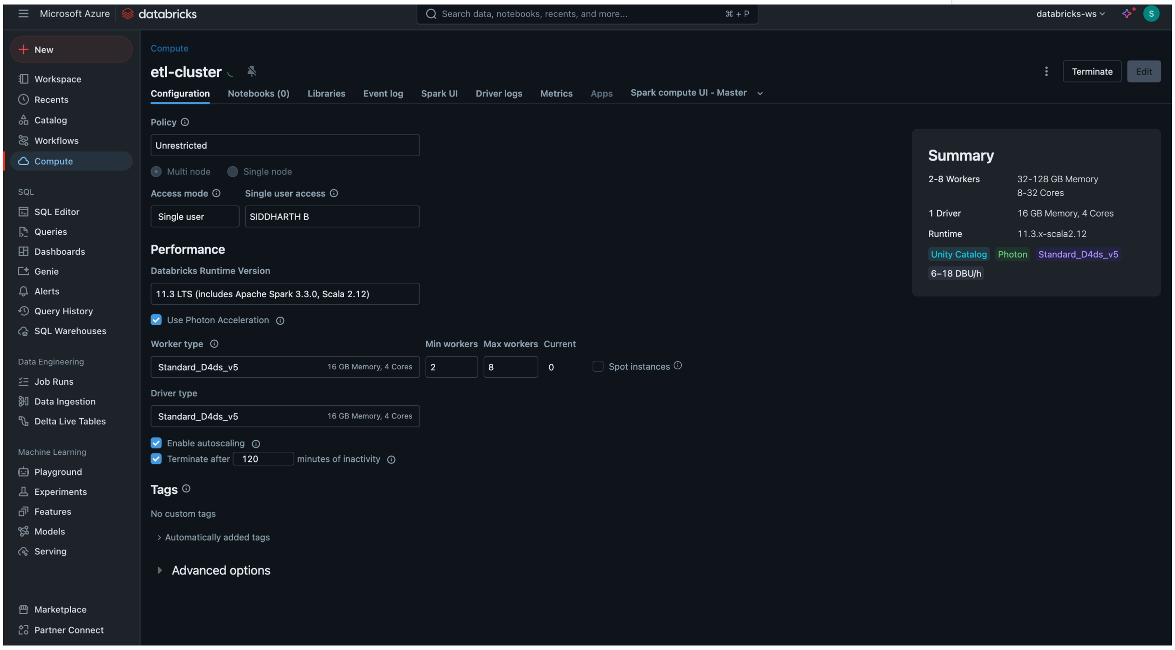


etl-cluster

Policy: Unrestricted

● Multi node ○ Single node

Access mode: Single user

Single user access: SIDDHARTH B

Performance

Databricks Runtime Version: 11.3 LTS (includes Apache Spark 3.3.0, Scala 2.12)

☑ Use Photon Acceleration

Worker type: Standard_D4ds_v5 16 GB Memory, 4 Cores

Min workers: 2 Max workers: 8 Current: 0

□ Spot instances

Driver type: Standard_D4ds_v5 16 GB Memory, 4 Cores

☑ Enable autoscaling

☑ Terminate after 120 minutes of inactivity

Tags

No custom tags

› Automatically added tags

Advanced options

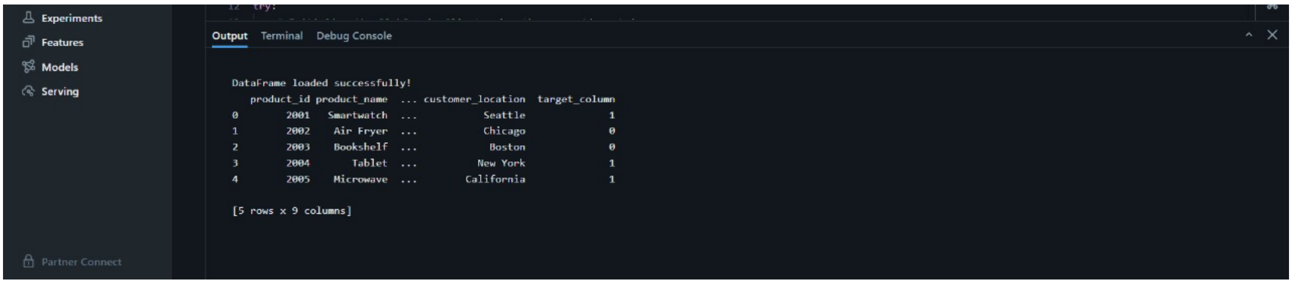
Summary

2-8 Workers	32-128 GB Memory 8-32 Cores
1 Driver	16 GB Memory, 4 Cores
Runtime	11.3.x-scala2.12

Unity Catalog Photon Standard_D4ds_v5

6–18 DBU/h

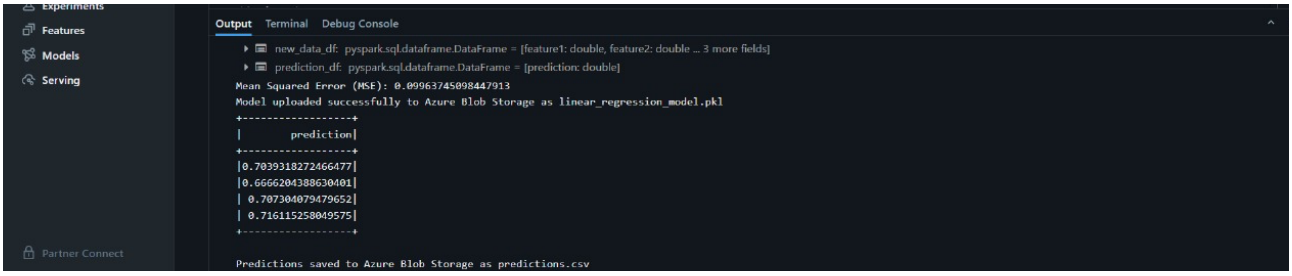
Step 2: Run the python code in Azure blob notebook (Load large dataset, preprocess, Implement ml):



```
try:
```

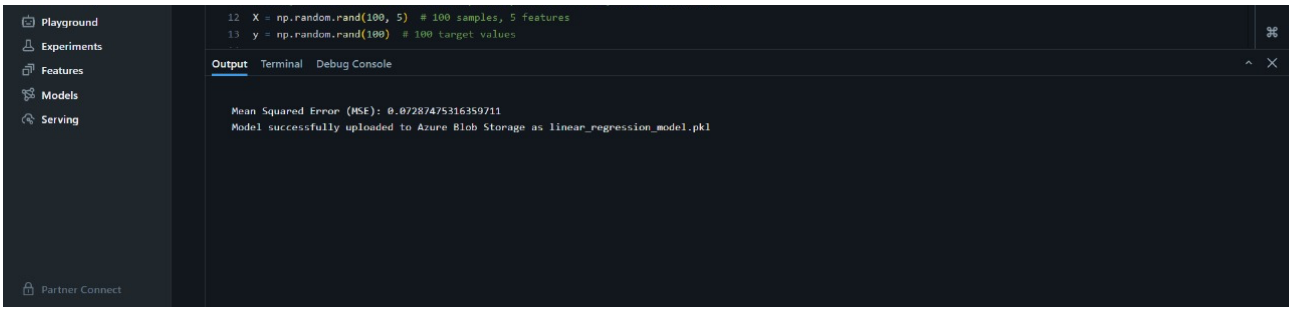
```
DataFrame loaded successfully!
   product_id product_name  ... customer_location  target_column
0        2001   Smartwatch  ...           Seattle              1
1        2002    Air Fryer  ...           Chicago              0
2        2003    Bookshelf  ...            Boston              0
3        2004       Tablet  ...          New York              1
4        2005    Microwave  ...        California              1

[5 rows x 9 columns]
```



```
▸ new_data_df: pyspark.sql.dataframe.DataFrame = [feature1: double, feature2: double ... 3 more fields]
▸ prediction_df: pyspark.sql.dataframe.DataFrame = [prediction: double]
Mean Squared Error (MSE): 0.09963745098447913
Model uploaded successfully to Azure Blob Storage as linear_regression_model.pkl
+------------------+
|        prediction|
+------------------+
|0.7039318272466477|
|0.6666204388630401|
| 0.707304079479652|
| 0.716115258049575|
+------------------+

Predictions saved to Azure Blob Storage as predictions.csv
```



```
X = np.random.rand(100, 5)  # 100 samples, 5 features
y = np.random.rand(100)  # 100 target values
```

```
Mean Squared Error (MSE): 0.07287475316359711
Model successfully uploaded to Azure Blob Storage as linear_regression_model.pkl
```